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CONCLUSIONS AND FUTURE WORK

5.1 Summary of technical contributions

5.2 Summary of empirical findings

5.3 Summary of empirical findings

5.4 Future Work

Moreover, the WebAssembly ecosystem is still in its infancy compared to more mature programming environments. A 2021 study by Hilbig et al. found only 8,000 unique WebAssembly binaries globally[**?**], a fraction of the 1.5 million and 1.7 million packages available in npm and PyPI, respectively. This limited dataset poses challenges for machine learning-based analysis tools, which require extensive data for effective training. The scarcity of WebAssembly programs also exacerbates the problem of software monoculture, increasing the risk of compromised WebAssembly programs being consumed[**?**]. This dissertation aims to mitigate these issues by introducing a comprehensive suite of tools designed to enhance WebAssembly security through Software Diversification and to improve testing rigor within the ecosystem.

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